Mathematical Models and Computer Simulations 2014 vol.6 N1, pages 101-107

Simulation of RF plasma flowing at low pressure

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Abstract

© 2014, Pleiades Publishing, Ltd. A mathematical model that describes RF plasma flowing at a pressure of 13.3–133 Pa and a Knudsen number of $8 \times 10-3 \leq Kn \leq 7 \times 10-2$ for the carrying gas is presented. The model is based on the statistical approach for a neutral plasma component and on a continuum model for electron and ion components. The results of the calculation for the neutral plasma component flowing in an undisturbed flow and, if the sample is in a circumfluent flow, are presented. The results of the calculation for the problem on an electron-ion gas are also given.

http://dx.doi.org/10.1134/S2070048214010141

Keywords

jet flow, low pressure, Monte-Carlo method, radio-frequency plasma, simulation, statistical simulation, transient mode